Networking and Information Technology Research and Development Program and Budget

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Networking and Information Technology R&D Program

- Coordinated, focused long-term interagency R&D in information technologies
- Evolved from the Federal HPCC, CIC, NGI, and IT R&D programs
- $2 billion multi-agency NITRD Program
  - 12 agencies and departments coordinated via a “virtual agency” coordination/management structure
  - Coordinated by the National Coordination Office for Information Technology Research and Development
- Assessed by the President’s Information Technology Advisory Committee

Publications

- Annual publication of the Supplement to the President's Budget also known as the "BLUE BOOK", describes the NITRD Program

  http://www.itrd.gov/pubs/blue03/03BB-final.pdf

- President's Information Technology Advisory Committee (PITAC) Reports

Transforming Access to Government Through Information Technology
http://www.itrd.gov/pubs/pitac/pres-transgov-11sep00.pdf

Developing Open Source Software to Advance High End Computing
http://www.itrd.gov/pubs/pitac/pres-oss-11sep00.pdf

Digital Libraries: Universal Access to Human Knowledge
http://www.itrd.gov/pubs/pitac/pitac-dl-9feb01.pdf

Transforming Health Care Through Information Technology
http://www.itrd.gov/pubs/pitac/pitac-hc-9feb01.pdf

Using Information Technology To Transform the Way We Learn
http://www.itrd.gov/pubs/pitac/pitac-tl-9feb01.pdf

Participating Agencies and Departments

- Agency for Health Research and Quality (AHRQ)
- Defense Advanced Research Projects Agency (DARPA)
- Department of Energy National Nuclear Security Administration (DOE/NNSA)
- Department of Energy Office of Science (DOE/SC)
- Environmental Protection Agency (EPA)
- National Aeronautics and Space Administration (NASA)
- National Institutes of Health (NIH)
- National Institute of Standards and Technology (NIST)
- National Oceanic and Atmospheric Administration (NOAA)
- National Security Agency (NSA)
- National Science Foundation (NSF)
- Office of the Director of Defense Research and Engineering (ODDR&E)

NITRD Program Coordination

WHITE HOUSE

Executive Office of the President
Office of Science and Technology Policy

National Science and Technology Council

President's Information Technology Advisory Committee (PITAC)

U.S. Congress

NITRD Authorization and Appropriations Legislation

National Coordination Office (NCO) for Information Technology Research and Development

Interagency Working Group (IWG) on Information Technology R&D

Participating Agencies: AHRQ, DARPA, DOE/NNSA, DOE/SC, EPA, NASA, NIH, NIST, NOAA, NSA, NSF, ODDR&E

- **High End Computing Coordinating Group (HEC)**
- **Large Scale Networking Coordinating Group (LSN)**
- **High Confidence Software and Systems Coordinating Group (HCSS)**
- **Human Computer Interaction & Information Management Coordinating Group (HCI & IM)**
- **Software Design and Productivity Coordinating Group (SDP)**
- **Social, Economic and Workforce Implications of IT and IT Workforce Development Coordinating Group (SEW)**

Agency NITRD Budgets (dollars in millions)

Agency	FY 2002 Estimate [1]	FY 2003 Request [1]	FY 2004 Proposed [2]
DOC (NIST, NOAA)	43	42	39
DoD (DARPA, NSA, ODDR&E)	306	297	461
DOE (NNSA, SC)	313	320	317
DHHS (AHRQ, NIH)	309	336	441
EPA	2	2	2
NASA	181	213	195
NSF	676	679	724
Totals	**1,830**	**1,889**	**2,179**

Source:

[1] FY 2003 Blue Book, "Strengthening National, Homeland, and Economic Security

[2] FY 2004 President's Budget

Program Component Areas (PCA) (dollars in millions FY 2003 Budget Request)

PCA	Participants	FY 2003 Request[1]
High End Computing (HEC)	DARPA, DOE/NNSA, DOE/SC, EPA, NASA, NIH, NIST, NOAA, NSA, NSF, ODDR&E	846.5
Large Scale Networking (LSN)	AHRQ, DARPA, DOE/NNSA, DOE/SC, NASA, NIH, NIST, NOAA, NSA, NSF, ODDR&E	317.0
High Confidence Software and Systems (HCSS)	NASA, NIH, NIST, NSA, NSF, ODDR&E	128.2
Human Computer Interaction and Information Management (HCI&IM)	AHRQ, DARPA, DOE/SC, NASA, NIH, NIST, NOAA, NSF, ODDR&E	309.2
Software Design and Productivity (SDP)	DARPA, DOE/NNSA, NASA, NIH, NIST,NOAA, NSF, ODDR&E	196.7
Social, Economic and Workforce Implications of IT and IT Workforce Development (SEW)	DOE/NNSA, DOE/SC, NASA, NIH, NSF	91.4
Totals		**1,889**

Source:

[1]FY 2003 Blue Book, "Strengthening National, Homeland, and Economic Security

Priorities for the Coordinating Groups (1)

- **High-End Computing (HEC)**
  - Long-range breakthroughs in HEC architectures and component technologies; computers capable of solving the most challenging computational problems
  - HEC infrastructure and applications resources for Federal and academic research

- **Large Scale Networking (LSN)**
  - Network security: overcoming impediments to effective cyber security (economic, infrastructure, technology)
  - Grid research and infrastructure
  - Advanced networking for data-intensive science, e.g., GriPhyN (Grid Physics Network)
  - Optical networking research

Priorities for the Coordinating Groups (2)

- **High Confidence Software and Systems (HCSS)**
  - Research in production, deployment, and certification of HCSS in mission-critical applications, i.e., affecting human life, critical infrastructure, or sensitive information
  - Activities fostering policymakers' awareness of HCSS role in homeland security and critical infrastructure protection

- **Human Computer Interaction and Information Management (HCI&IM)**
  - Human interactions with computers/systems
    - New device development
    - Natural-language science and technologies
    - Multimodal and multimode information
  - Human and system uses of information
    - Creation, access, and interaction
    - Managing information as an asset

Priorities for the Coordinating Groups (3)

- **Software Design Productivity (SDP)**
  - A science of software design and implementation management
    - Complexity, scale of system demands
    - Management tools for software-development
  - ***Report: Workshop on New Visions for Software Design and Productivity: Research and Applications, 2003***
    - http://www.itrd.gov/pubs/sdp_wrkshp_final.pdf
    - Current promising approaches and problems they address
    - Key research issue: tradeoffs in cost and performance

- **Social, Economic and Workforce Implications of IT and IT Workforce Development (SEW)**
  - Research in social, economic, and workforce (SEW) implications of new information technologies
  - Initiatives to improve communication between SEW researchers and policymakers, so research can inform decision-making

Planning for High End Computing

"Due to its impact on a wide range of federal agency missions ranging from national security and defense to basic science, high end computing—or supercomputing —capability is becoming increasingly critical. Through the course of 2003, agencies involved in developing or using high end computing will be engaged in planning activities to guide future investments in this area, coordinated through the NSTC. The activities will include the development of interagency R&D roadmap for high-end computing core technologies, a federal high-end computing capacity and accessibility improvement plan, and a discussion of issues (along with recommendations where applicable) relating to federal procurement of high-end computing systems. The knowledge gained for this process will be used to guide future investments in this area. Research and software to support high end computing will provide a foundation for future federal R&D by improving the effectiveness of core technologies on which next-generation high-end computing systems will rely."[1]

Source:

[1] FY 2004 President's Budget

For Further Information

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www.itrd.gov